HamSCI 2025 - Day 1 Closing Remarks

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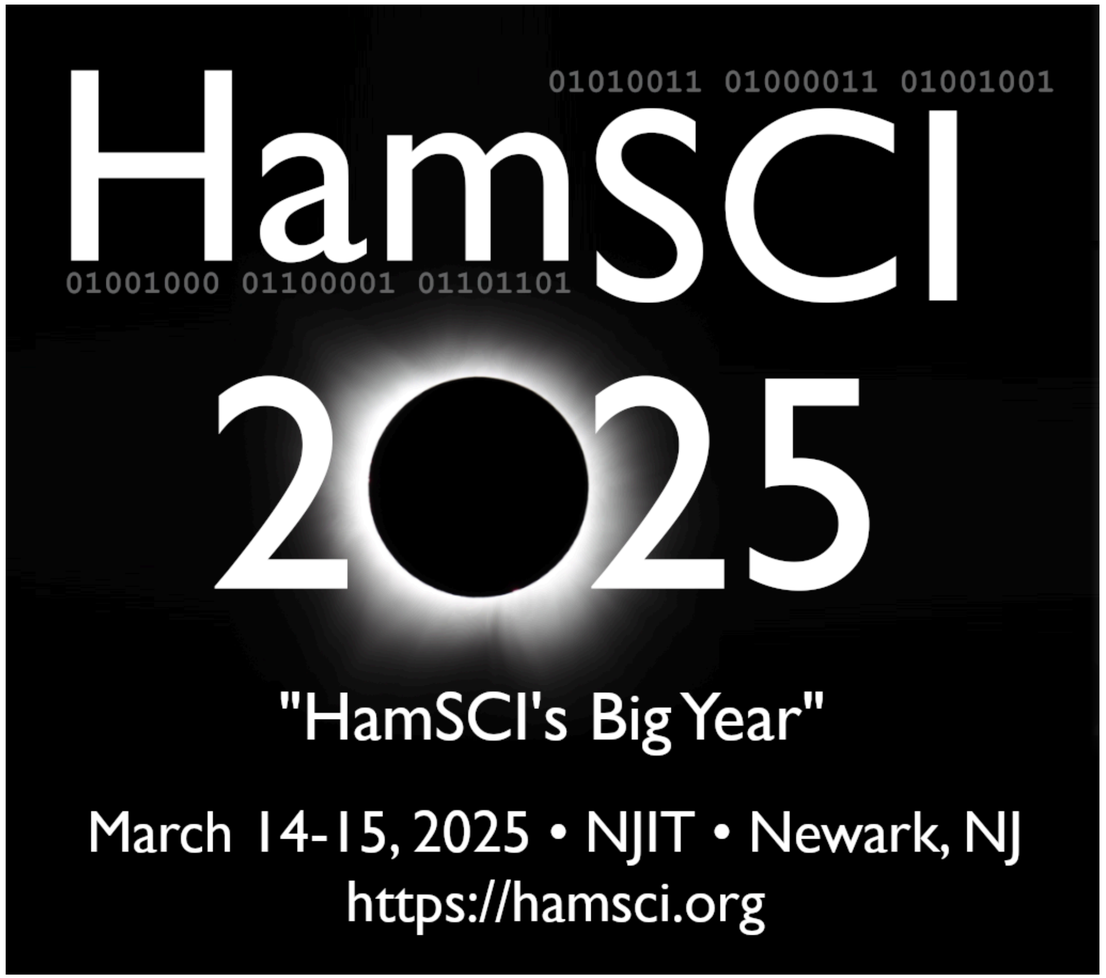
Center for Solar-Terrestrial Research
New Jersey Institute of Technology

2025 HamSCI Workshop
March 14, 2025
Newark, NJ

With support from NASA 80NSSC25K7026



- HamSCI Meeting #**8.**
- Registered attendees (in-person).
  - **106** Friday.
  - **102** Saturday.
- Registered attendees (virtual).
  - **75** (all weekend).
- Submitted abstracts: 58.
- 3.1415926535…

HamSCI's Big Year

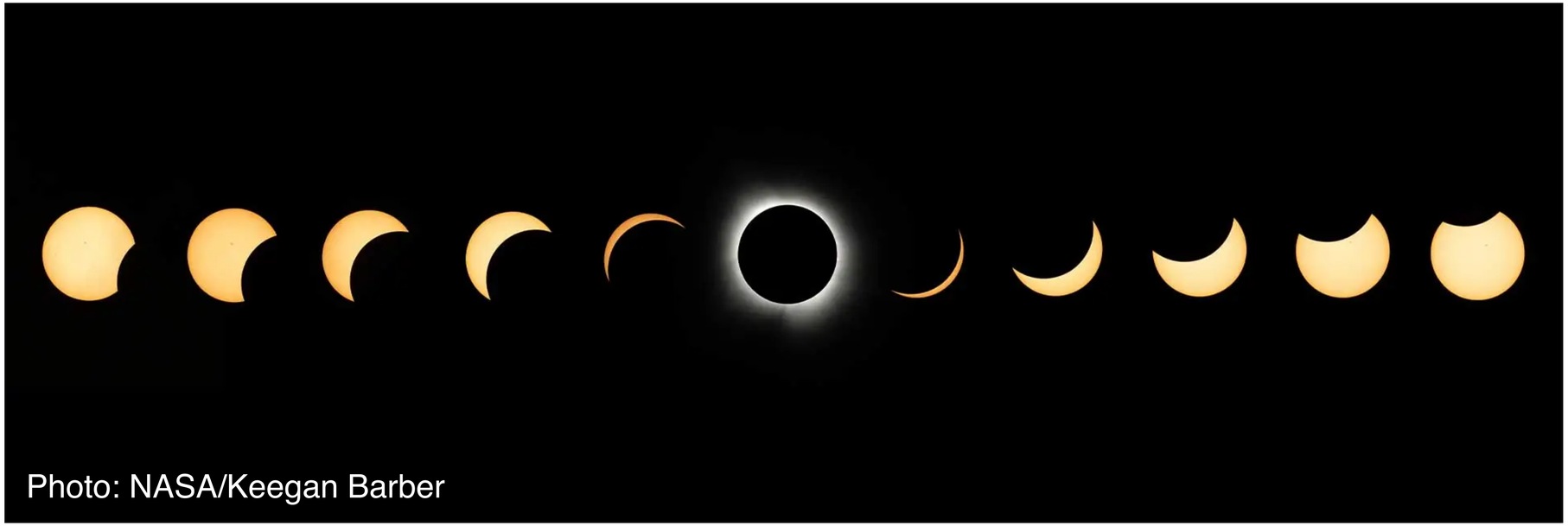
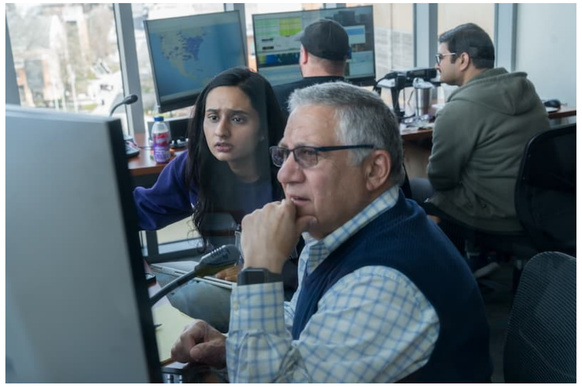
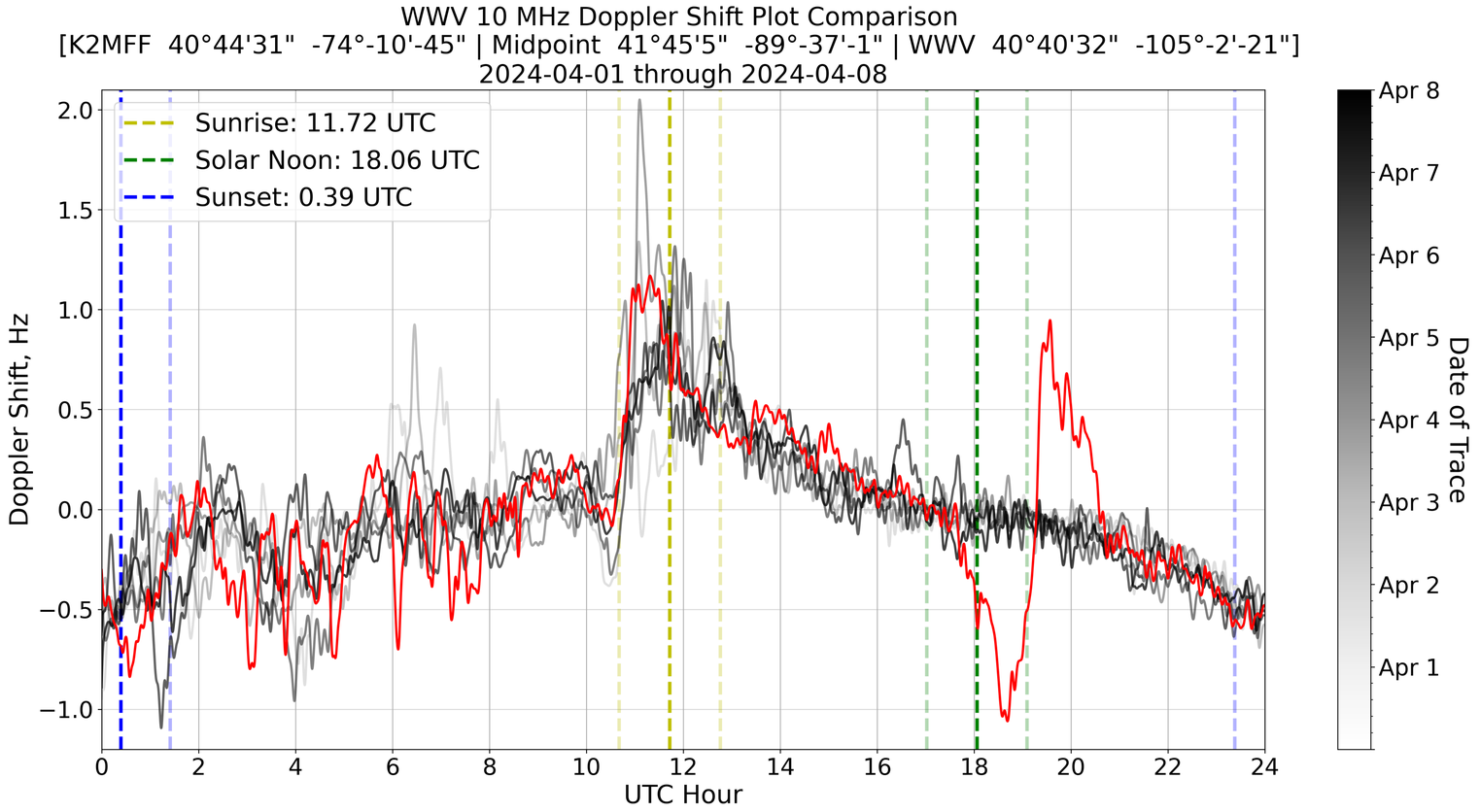


Photo: NASA/Keegan Barber

Photos: U. of Scranton



April 9, 2024 at TESS Meeting in Dallas



"Tell HamSCI, on behalf the American Geophysical Union, keep-up the great work."

Plot courtesy of S. Fernandes, NJIT

AGU 2024 (Washington, D.C.)
HamSCI Contributions

HamSCI Presentations and Events - AGU 2024

Monday			
8:52 - 9:02 EST	Oral	Liberty L (Marriott Marquis)	**SA11A-03 A Low-Cost Low-Power Chirp Ionoson**
9:02 - 9:14 EST	Oral	Liberty L (Marriott Marquis)	**SA11A-04 HamSCI HF Multipath Propagation Moc (https://agu.confex.com/agu/agu24/meetingapp.c**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA11E-2721 Making Amateur Radio Data Availabl**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SH11G-2893 On the Effects of the 10 May 2024 G5 (https://agu.confex.com/agu/agu24/meetingapp.c**
17:20 - 17:30 EST	Oral	Ballroom A (Convention Center)	**U14A-08 HamSCI Festivals of Eclipse Ionospheric North American Solar Eclipses and Beyond (Invite**
13:40 - 17:30 EST	Poster	Hall B-C (Convention Center)	**SA13A-2726 HamSCI as a Novel Dataset to Valida**
13:40 - 17:30 EST	Poster	Hall B-C (Convention Center)	**SA13A-2727 HF Propagation Experiment Utilizing (https://agu.confex.com/agu/agu24/meetingapp.c**
13:40 -	Poster	Hall B-C (Convention	**SA13A-2730 High Frequency Radio Receivers for**
Tuesday			
8:45 - 10:15 EST	Press Conference	AGU Press Area	**NASA Solar Eclipse Science Press Conference (ht**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA21B-2592 A Multi-Year Climatology of 14 MHz A (https://agu.confex.com/agu/agu24/meetingapp.c**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA21B-2594 Characterizing Ionospheric Variabilit (https://agu.confex.com/agu/agu24/meetingapp.c**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA21B-2602 Full-wave simulations of high-freque (https://agu.confex.com/agu/agu24/meetingapp.c**
13:40 - 17:30 EST	Poster	Hall B-C (Convention Center)	**SA23B-2673 Using Amateur (Ham) Radio Weak Si Particularly at High Latitudes (https://agu.confex.**
Wednesday			
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA31E-2471 A Solar Cycle of Medium Scale Trave (https://agu.confex.com/agu/agu24/meetingapp.c**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA31E-2472 Amateur Radio Communications Sho**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA31E-2476 First Observations Linking Large-Sca (https://agu.confex.com/agu/agu24/meetingapp.c**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA31E-2477 Forward Modeling of SuperDARN Me MUSIC Toolkit (https://agu.confex.com/agu/agu2**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA31E-2480 Investigating North American SuperD (https://agu.confex.com/agu/agu24/meetingapp.c**
10:20 - 11:50 EST	eLightning	eLightning Theater 3 (Convention Center)	**SM32B-06 Mapping Solutions for Geomagnetic C (https://agu.confex.com/agu/agu24/meetingapp.c**
13:40 - 17:30 EST	Poster	Hall B-C (Convention Center)	**SM33B-2601 Direction Finding of Multiple Simulta**
13:40 - 17:30 EST	Poster	Hall B-C (Convention Center)	**P33B-2871 New modeling of Schottky Diode curre (https://agu.confex.com/agu/agu24/meetingapp.c**
14:10 - 15:40 EST	eLightning	eLightning Theater 6 (Convention Center)	**P33J-09 New Modeling Of Irradiation-induced Cu (PART II) (https://agu.confex.com/agu/agu24/mee**
Thursday			
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**IN41C-2231 Integration & Validation of a Standard Implementing a Comprehensive Testing Suite (htt**
Friday			
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA51D-2730 Solar Eclipse QSO Party (SEQP) Iono**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SA51D-2731 Analysis of the HamSCI Solar Eclipse (https://agu.confex.com/agu/agu24/meetingapp.c**
8:30 - 12:20 EST	Poster	Hall B-C (Convention Center)	**SH51E-2937 Observations of the Solar Eclipse Im**
14:20 - 14:30 EST	Oral	Liberty I-K (Marriott Marquis)	**SH53F-02 Results from the 2023/2024 HamSCI Fe (https://agu.confex.com/agu/agu24/meetingapp.c**
17:02 - 17:10 EST	Oral	Independence E (Marriott Marquis)	**SA54A-08 Interhemispheric Comparison of Geom (https://agu.confex.com/agu/agu24/meetingapp.c**

What's Next?

Total Solar Eclipse of 2044 Aug 23

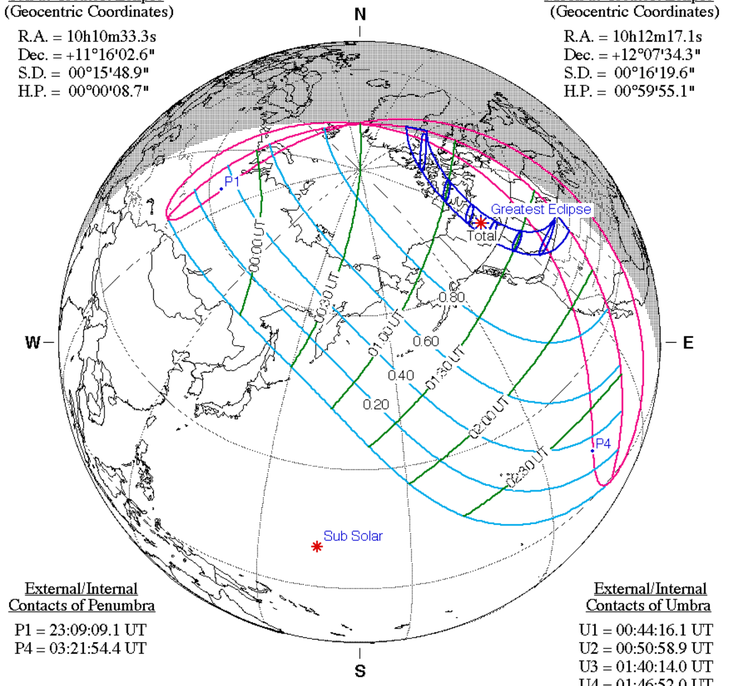
Geocentric Conjunction = 00:25:28.5 UT J.D. = 2467850.517691
Greatest Eclipse = 01:15:19.7 UT J.D. = 2467850.552311

Eclipse Magnitude = 1.0365 Gamma = 0.9612

Saros Series = 126 Member = 49 of 72

Sun at Greatest Eclipse (Geocentric Coordinates)
R.A. = 10h10m33.3s
Dec. = +11°16'02.6"
S.D. = 00°15'48.9"
H.P. = 00°00'08.7"

Moon at Greatest Eclipse (Geocentric Coordinates)
R.A. = 10h12m17.1s
Dec. = +12°07'34.3"
S.D. = 00°16'19.6"
H.P. = 00°59'55.1"



External/Internal Contacts of Penumbra
P1 = 23:09:09.1 UT
P4 = 03:21:54.4 UT

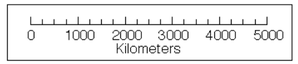
External/Internal Contacts of Umbra
U1 = 00:44:16.1 UT
U2 = 00:50:58.9 UT
U3 = 01:40:14.0 UT
U4 = 01:46:52.0 UT

Local Circumstances at Greatest Eclipse

Lat. = 64°19.9'N Sun Alt. = 15.5°
Long. = 120°27.3'W Sun Azm. = 263.8°
Path Width = 452.0 km Duration = 02m03.9s

Ephemeris & Constants
Eph. = Newcomb/ILE
ΔT = 104.5 s
k1 = 0.2724880
k2 = 0.2722810
Δb = 0.0" Δl = 0.0"

Geocentric Libration (Optical + Physical)
l = 3.94°
b = -1.21°
c = 19.28°
Brown Lun. No. = 1505



F. Espenak, NASA's GSFC - 2004 Jul 06
sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Total Solar Eclipse of 2045 Aug 12

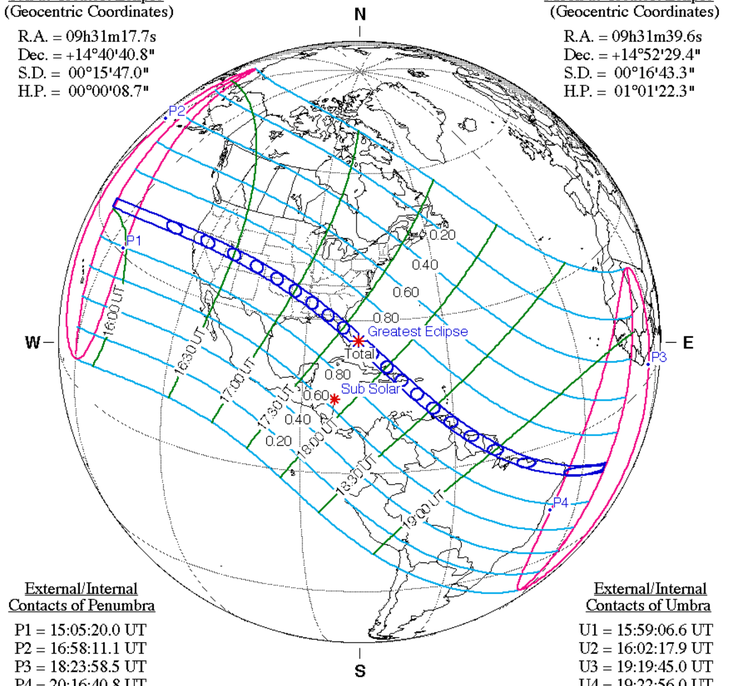
Geocentric Conjunction = 17:31:15.2 UT J.D. = 2468205.230037
Greatest Eclipse = 17:40:58.3 UT J.D. = 2468205.236786

Eclipse Magnitude = 1.0774 Gamma = 0.2114

Saros Series = 136 Member = 39 of 71

Sun at Greatest Eclipse (Geocentric Coordinates)
R.A. = 09h31m17.7s
Dec. = +14°40'40.8"
S.D. = 00°15'47.0"
H.P. = 00°00'08.7"

Moon at Greatest Eclipse (Geocentric Coordinates)
R.A. = 09h31m39.6s
Dec. = +14°52'29.4"
S.D. = 00°16'43.3"
H.P. = 01°01'22.3"



External/Internal Contacts of Penumbra
P1 = 15:05:20.0 UT
P2 = 16:58:11.1 UT
P3 = 18:23:58.5 UT
P4 = 20:16:40.8 UT

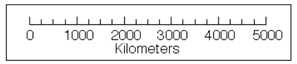
External/Internal Contacts of Umbra
U1 = 15:59:06.6 UT
U2 = 16:02:17.9 UT
U3 = 19:19:45.0 UT
U4 = 19:22:56.0 UT

Local Circumstances at Greatest Eclipse

Lat. = 25°53.8'N Sun Alt. = 77.7°
Long. = 078°29.5'W Sun Azm. = 205.7°
Path Width = 255.6 km Duration = 06m05.7s

Ephemeris & Constants
Eph. = Newcomb/ILE
ΔT = 105.7 s
k1 = 0.2724880
k2 = 0.2722810
Δb = 0.0" Δl = 0.0"

Geocentric Libration (Optical + Physical)
l = 0.23°
b = -0.28°
c = 16.99°
Brown Lun. No. = 1517



F. Espenak, NASA's GSFC - Fri, Jul 2,
sunearth.gsfc.nasa.gov/eclipse/eclipse.html

NJIT New Jersey Institute of Technology

Proposed HamSCI QRV Program

- Funded by NASA Heliophysics Citizen Science Investigations program.
  - Co-PI: Dr. Nathaniel Frissell, University of Scranton.
  - Grant lifetime: 08/2024 - 08/2027.
- The idea here is to “pivot” HamSCI towards other heliophysics events (while we all wait patiently for the next eclipses!).
- Replicate (where feasible) FoEIS framework for events of interest — with the ability to do it on a *much shorter* lead time.
  - Weeks or even days — not years.
  - Activate a templated contest on short notice.
- QRV - “Are you ready?”

Proposed HamSCI QRV Program

Heliophysics Event	Lead Time	Expected Number of Events during grant lifetime
“Halo” Coronal Mass Ejection	1 – 3 days	30
Corotation Interaction Region	25 days	30
Meteor Shower	1 year	27
Significant (Tonga Class) Geological Event	2 days	1

Table 1: HamSCI QRV science targets.

- Check out McKenzie Denton, KO4GLN poster “HamSCI's Meteor Scatter QSO Party”.
- Attend Thursday HamSCIENCE Zoom telecons.
- HamSCI QRV planning starts …. Monday (March 24, 2025!).

Thank you!

A R D C
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